

NOTES ON FISHES COLLECTED IN MEXICO BY PROF. ALFREDO  
DUGÈS, WITH DESCRIPTIONS OF NEW SPECIES.

BY

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(With Plate XLIV.)

The U. S. National Museum received from Prof. A. Dugès, August 24, 1891, a small but very interesting collection of fishes, including three species which appear to be new to science, and which are described in the following paper. Among these fishes are two examples of *Lampetra spadicea* of much larger size than any previously obtained, and which show some very interesting variations from the types. The species of *Acara* from the region Huazteca Potosina, in the province of San Luis Potosi, Mexico, is interesting because it appears to be the first one of its group from the locality. It is rather curious that the name Mojarra should be held in common by this fish and the species of *Gerres*.

*Lampetra spadicea* Bean.

Two examples,  $10\frac{1}{4}$  and  $10\frac{1}{2}$  inches long, Catalogue No. 43766, Collector's No. 177; from Tanganziawaro.

The length of the head is one-eighth of the total, and the diameter of the eye is contained four and two-third times in the length of the snout. In the longer individual the maxillary tooth has two minute cusps between the large ones, but neither of these is median. The mandibular plate has nine cusps, of which five are larger than the intervening ones. The teeth around the margin of the disk are reduced to two rows posteriorly. In the shorter example, which has more of a bluish tint overlying the chestnut of the upper parts, the maxillary tooth has one minute supplementary cusp, not median in position. The mandibular plate has nine cusps, as in the larger individual.

*Algansea dugèsi*, new species. (Plate XLIV, fig. 1.)

This species is related to *A. australe* Jordan, from which it differs in its much smaller scales.

The types of the species are catalogue Nos. 41818 and 43764, U. S. National Museum. They were collected by Prof. A. Dugès, of Guana-

juato, Mexico. The first is No. 169 of his series, and the other is 174. No. 169 was taken at Guanajuato and No. 174 in Lake Yuriria. The length of No. 41818 is 7 inches to the base of the caudal, the total length  $8\frac{3}{8}$  inches. The smaller example is  $5\frac{1}{2}$  inches to the caudal base; total length,  $6\frac{1}{2}$  inches. The height of the body in the larger specimen equals the length of the head, and one-quarter of the total without caudal. In the smaller example the height is contained four and one-half times in the same length. The least depth of the tail is from one-half to two-fifths that of the greatest depth. The eye is placed near the top of the head; its diameter is contained one and one-half times in the length of the snout and from five to five and a half times in the length of the head. The lower jaw is slightly included; it has a small knob at the symphysis. The maxilla reaches to below the front of the eye. The dorsal origin is midway between the tip of the snout and the base of the caudal (over the twenty-eighth scale of the lateral line). Its base equals two-ninths of its distance from the tip of the snout. The longest ray is two-thirds as long as the head and more than twice as long as the last ray. The scales are very small and much crowded anteriorly, larger behind. The ventral origin is under the middle of the dorsal base; the fin does not reach to the vent, its length equal to that of the postorbital part of the head. The pectoral is as long as the head without the snout. The anal origin is distant from the ventral origin a space nearly equal to the length of the head. The length of the anal base is about equal to that of the snout. The longest anal ray equals the length of the ventral, and fully twice the length of the last ray.

D. ii, 7; A. ii, 6; V. 9; P. 16.

Scales 18, 69 to 72, 13. The lateral line is sharply decurved over the pectoral, and, in the straight portion, is below the median line of the body. The caudal is large and well forked, its middle rays three-fifths as long as the outer.

The color is dusky brown, the cheeks and opercles silvery, and the belly whitish. A very indistinct dark spot at the caudal base, deeper than long, its depth about equal to the diameter of the eye. The dorsal, caudal, and pectoral fins dusky; the pectorals, ventrals, and anal mingled with silvery. Teeth 4—4. The three largest with a broad grinding surface, and the second, third and fourth with a slight hook. On the other side of the same example all of the teeth have a well developed grinding surface. Gill-rakers, four above the angle and fifteen below; the longest about one-third as long as the eye.

The species is named in honor of its discoverer, Prof. A. Dugès.

*Hudsonius altus* Jordan.

A single example of this species, catalogue No. 43763, collector's No. 175, obtained at Lake Yuriria, Mexico, is  $6\frac{1}{2}$  inches long. The eye is nearly as long as the snout and two-ninths as long as the head, which

is one-fourth of the total without caudal. The depth is two-sevenths of the same length. The dorsal origin is over the seventeenth scale of the lateral line and immediately over the ventral origin. The ventral reaches to the vent.

D. iii, 7; A. iii, 7. Scales, 9—45—5. Teeth 4—4, scarcely hooked; a narrow grinding surface developed on three of them.

*Fundulus robustus*, new species. (Plate XLIV, fig. 2.)

The types of the species are numbers 43760, U. S. National Museum, collector's No. 173, and 43762, the first being a female and the other a male.

The length of the female to the base of the caudal is 107 millimeters; total length, 126 millimeters. The greatest height of the body at the origin of the ventral (37 millimeters) is slightly more than one-third of the length without caudal. The length of the head is a little less than one-third of the total without caudal. The least depth of the caudal peduncle is one-half of the greatest depth of the body. The head is broad, the distance between the eyes equal to the length of the eye and the snout combined. The top of the head is nearly flat, and the nape is moderately elevated. The eye is as long as the snout, its length contained from four and one-half to five times in that of the head. The mouth is very obliquely placed, and the lower jaw is longer than the upper. The end of the maxilla reaches to below the front of the eye. The intermaxillary is very protractile; the width of the mouth is one-third the length of the head. Teeth in the jaws in narrow bands or biserial, all conical, the outer series somewhat enlarged. Gill-rakers short, stout, about nineteen on the first arch. There are thirteen scales between the upper angle of the gill opening and the origin of the dorsal. The dorsal commences nearly midway between the tip of the snout and the end of the tail.

The dorsal base is one-half as long as the head and a little longer than the longest dorsal ray. The ventral origin is midway between the tip of the snout and the base of the caudal. In the male the fin reaches to the vent and nearly as far in the female. The anal origin is under the middle of the dorsal base, and the last ray is under the last dorsal ray. In the female the first six rays are short and stiff, and the genital opening is immediately in front of, but disconnected from, the anal fin. The anal base is nearly as long as the longest anal ray and one-third as long as the head. In the male the middle caudal rays are one-half as long as the head; slightly shorter in the female. The longest dorsal ray (fifth) in the female is considerably more than one-half the length of the head, while in the male it is considerably less than one-half length of head.

B. 5; D. 14; A. 16; V. 6; P. 16. Scales, 16—38.

The color at present is uniform pale brown; fins unspotted and the opercle with a golden tint.

In radial formula and number of scales this species is apparently nearest to *F. labialis* Gthr., but in *labialis* the height of the body at the base of the pectoral is contained four and one-half times in the length without caudal, while in the species here described it is contained three times. In *F. labialis* the head forms one-fourth or less than one-fourth of the total without caudal, while in this species it is fully one-third of this length.

Additional examples of this species were obtained by Prof. Dugès, being number 37834 U. S. National Museum, a single specimen 5 inches long; and number 41973, five examples, the largest 4 inches long and the smallest  $2\frac{1}{2}$  inches. In these five specimens the differences separating *F. robustus* from *F. labialis* Gthr. are found to be constant.

*Characodon variatus* Bean.

A single specimen, No. 43761 U. S. National Museum, collector's No. 184,  $2\frac{3}{4}$  inches long, was collected by Prof. Dugès in the State of Guanajuato. With the aid of the numerous additional specimens collected by this gentleman since my description of *Characodon variatus* and *ferrugineus* was published (Proc. U. S. Nat. Mus., 1887, pp. 370-372), I am led to believe that these two species are identical. The sexual differences are very striking. On Plate xx of the volume just mentioned is a female, and fig. 4 the male. In a large series of this species, No. 41813, containing many females, this sex is found to have a narrow dark band along the side usually well developed, and a very distinct broad dark band occupying the middle of the caudal fin, the base and the tip being pale. The dorsal in this sex is bluish, except that there is a narrow pale margin along the top.

It should be stated, also, that my previous opinion as to the identity of *Goodea* and *Characodon* is erroneous, the characters assigned to *Goodea* justifying its separation as a distinct genus.

*Acara bartoni*, new species. (Plate XLIV, fig. 3.)

The description is based upon four specimens, catalogue number 43765, U. S. National Museum, which were collected in Hantzeca Potosina, a region situated north of the State of Guanajuato, in the State of San Luis Potosi, Mexico. Prof. Dugès thinks this region probably extends eastward to the Hantzeca Grande, in the States of Tamaulipas and Vera Cruz. The common name in the region is Mojarra.

All of the specimens have been eviscerated and have had their gills removed, but as no better individuals are available they must serve for the purposes of this description. The largest example is 7 inches long and the smallest  $3\frac{1}{2}$  inches.

The greatest height of the body is contained two and a third times in the length without the caudal. The two larger examples have the nape strongly arched. The diameter of the eye is contained from four and a half to five and a half times in the length of the head or twice in

the length of the snout. The width of the space between the eyes equals two-thirds the length of the snout. The mouth is very oblique; the lower jaw projects, and the maxilla does not reach to the vertical from the front of the eye. The length of the upper jaw equals two-fifths that of the head. The teeth in the jaws are in bands, the outer series much enlarged and brown at their tips. Head of the vomer much enlarged, but toothless. Palate without teeth. Scales on the cheek in about six series. The dorsal begins over the gill opening, the first spine very short, the second somewhat longer, the length of the spines gradually increasing backward, so that the last and longest spine is nearly one-third as long as the head. The longest soft rays (third and fourth) are nearly one-half as long as the head. The spines of the dorsal are rather slender. The anal origin is nearly under the beginning of the soft dorsal. The fin contains four spines, of which the first is about three-fourths as long as the eye, and the fourth nearly one-third as long as the head. The longest anal ray (fourth) is more than one-half as long as the head. The least depth of the tail equals the length of the snout. The middle caudal rays are slightly longer than the longest anal ray. The pectoral nearly reaches to above the origin of the anal and the ventral reaches to the vent.

There are five or six rows of scales between the origin of the dorsal and the lateral line; eleven between the anal origin and the lateral line, counting obliquely upward and forward. Scales in L. lat. 34. The line is interrupted under the fourth soft ray of the dorsal and begins on the median line of the tail at a distance below the upper line a little greater than the diameter of the eye.

D. XIV, 11; A. IV, 9.

The color is purplish brown; from the head to the tail there is a broad dark band, which is more or less broken up into separate blotches, the last of which is very distinct at the base of the tail. Fins dusky. In a specimen about 5 inches long the cheeks and snout are profusely covered with minute roundish brown dots.